

AMENDMENTS TO THE SPECIFICATION:

Page 1, please add the following new paragraphs before paragraph [0001]:

- [0000.2] CROSS-REFERENCE TO RELATED APPLICATIONS
- [0000.4] This application is a 35 USC 371 application of PCT/DE 03/02317
 filed on July 10, 2003.
- [0000.6] BACKGROUND OF THE INVENTION

Please replace paragraph [0001] with the following amended paragraph:

- [0001] **Technical Field of the Invention**

Page 2, please replace paragraph [0005] with the following amended paragraph:

- [0005] In order to avoid the disadvantageous armature chatter that occurs in solenoid valves when they are triggered, the armatures of the solenoid valves according to DE 196 50 865 A1 and DE 197 08 104 A1 are embodied as two-part armatures. The armatures have an armature rod and an armature plate that is mounted in sliding fashion onto the armature rod. The use of two-part armatures reduces their effectively braked mass and therefore reduces the kinetic energy of the armature striking the valve seat and thus causing the armature chatter. A triggering of the solenoid valve only results in a definite injection quantity once the postoscillation of the armature plate has finished. It is therefore necessary to take steps to reduce the postoscillation of the armature plate. This is particularly necessary when short time intervals are required between a preinjection and main injection phase. In order to solve this problem, damping devices are used, which have a stationary part and a part that moves with the armature plate. The stationary part can be comprised of ~~an~~ a maximum stroke stop, which limits the maximum travel length by which the armature plate can slide on the armature rod. The moving part is comprised of a protrusion that is provided on an armature

plate and is oriented toward the stationary part. The maximum stroke stop can be constituted by the end surface of a sliding piece that guides the armature rod and is clamped in a stationary fashion in the housing of the solenoid valve or by a part such as a washer disposed in front of the sliding piece. When the armature plate approaches the maximum stroke stop, a hydraulic damping chamber is formed between the opposing end surfaces of the armature plate and the maximum stroke stop. The fuel contained in the damping chamber exerts a force that counteracts the movement of the armature plate, thus exerting a powerful damping action on the postoscillation of the armature plate.

Page 4, please replace paragraph [0008] with the following amended paragraph:

[0008] **Depiction of the Invention** SUMMARY OF THE INVENTION

Page 7, please replace paragraph [0016] with the following amended paragraph:

[0016] **Drawings** BRIEF DESCRIPTION OF THE DRAWINGS

Please replace paragraph [0017] with the following amended paragraph:

[0017] The invention will be explained in detail below in conjunction with the drawings, in which: :

Page 9, please replace paragraph [0032] with the following amended paragraph:

[0032] **Exemplary Embodiments**

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please delete paragraph [0033].

Please replace paragraph [0034] with the following amended paragraph:

[0034] Fig. 1 shows a fuel injector 1, which has a valve body 2 to which a holding body 5 is fastened by means of a clamping nut 4. The holding body 5 has a central bore 6 that contains a push rod 7 that extends in the valve body 2 and through the holding body 5. The lower end of the holding body 5, which is interchangeably fastened to the valve body 2 by means of the clamping nut 4, accommodates a nozzle retaining nut 8, which in turn contains a nozzle body 9. The nozzle retaining nut ~~9~~ 8 serves to screw the lower end of the holding body 5 to the nozzle body 9. The transition region between the lower end of the holding body 5 and the upper region of the nozzle body 9 contains a closing spring 10, which encompasses the lower end of the push rod 7 and acts on a vertically moving injection valve element 11 contained in the nozzle body 9. The injection valve element 11 is preferably embodied as a nozzle needle and, in the region of a pressure shoulder, is encompassed by nozzle chamber 12.

Page 10, please replace paragraph [0036] with the following amended paragraph:

[0036] In its upper region, the valve body 2 has an inlet fitting 3. To the sides in the depiction according to Fig. 1, a first actuator 15 and a second actuator 16 are screwed into corresponding bores in the valve body 2. In the first exemplary embodiment of the design according to the invention shown in Fig. 1, two separate actuators 15 and 16 are provided, which are preferably embodied as solenoid valves. The first actuator 15 acts on a first outlet throttle 17 (see Fig. 4) while the second actuator 16 acts on ~~a~~ another triggering throttle element ~~18~~ disposed opposite from it. The two outlet throttles 17 and 18 shown in Fig. 4 are opened and closed by a for example spherical or conical closing body (see depiction in Fig. 4). The valve body 2 also contains a control chamber 19 that is delimited on the one hand by the valve body 2 and on the other hand by the upper end surface of the push rod 7. The first

actuator 15 and the second actuator 16 are structurally identical. The first actuator 15 has a magnet core 21 that is encompassed by a cylindrical magnet sleeve 22. The magnet coil contained in the magnet core 21 actuates a solenoid armature (see depiction in Fig. 4). The solenoid armature is acted on by a compression spring 25 that extends through the magnet core 21 and is partially encompassed by a plate-shaped region of an outlet fitting 27. The second actuator 16 is embodied in an analogous fashion.

Page 11, please replace paragraph [0038] with the following amended paragraph:

[0038] Fig. 2 shows that the valve body 2, whose upper region has a central bore connection 3, has a pressure connection fitting 31 in addition to the first and second actuators 15 and 16 shown in Fig. 1. This pressure connection fitting 31, which is screwed into the valve body 2, has an inlet throttle 32 via which a control volume, i.e. highly pressurized fuel, is exerted on the control chamber 19 (see Fig. 1 4a). The pressure fitting opposite from the pressure connection fitting 31 can be used as a pressure measurement connection 34 for measuring the level of pressure prevailing in the control chamber 19. At the bottom end of the valve body 2, a clamping nut 4 is shown, which connects the holding body 5 to the valve body 2. The screw connection by means of the clamping nut 4 between the valve body 2 and the holding body 5 permits the fuel injector according to the invention to be embodied in various lengths. This advantageously permits the geometry of the valve body 2 to remain unchanged and the length to be adapted solely by means of the height, i.e. the axial length of the holding body 5.

Page 12, please delete paragraph [0042].

Page 14, please replace paragraph [0047] with the following amended paragraph:

[0047] The respective magnet core 21 of the first actuator 15 and the second actuator 16 encompasses a compression spring 25 that is in turn encompassed by a sleeve. The compression spring 25 acts on a solenoid armature 23, which includes ~~two parts: an armature rod 24 and an armature plate 26. The solenoid armature has~~ an armature rod 24 and has an armature plate 26 that encompasses the armature rod 24. The armature rods 24 of the solenoid armatures of the first actuator 15 and the second actuator 16, at their end surfaces oriented toward the closing elements 43 and 49, have closing element recesses that partially encompass the closing elements 43, 49 in accordance with their geometry.

Please replace paragraph [0048] with the following amended paragraph:

[0048] The plate-shaped region of the outlet fitting 27 is provided with a first sealing ring 40, which is oriented toward the inside of the magnet sleeve 22 encompassing the magnet core 21. On the outside, the magnet sleeve 22 has another, second sealing ring 41. When the first actuator 15 and second actuator 16 are embodied as solenoid valves, the solenoid armature 24, 26 can include an armature plate spring 42 that supports the armature plate 26 of the solenoid armature 24, 26 in relation to an armature rod guide 46 that encompasses the armature rod 24. The reference numeral 45 indicates the stroke that the solenoid valve executes when the magnet coil contained in the magnet core 21 is supplied with power. The armature stroke 45 is the distance between the end surface of the armature plate 26 oriented toward the magnet coil inside the ~~armature~~ ~~magnet~~ core 21 and the end surface of the magnet core 21 oriented toward this armature plate. The armature plate spring 42 acting on the armature plate 26 of the solenoid armature 24, 26 is supported against an end surface 47 of the armature rod guide 46. According to the embodiment of the valve body 2 of the fuel injector 1 shown in the enlargement in Fig. 4, the outlet throttles 17 and 18 are embodied in

interchangeable inserts 30. The inserts 30 can be laterally mounted – as shown in Fig. 4 – either by means of valve clamping nuts 29 on opposite sides from each other in corresponding bores in the valve body 2. In addition, it would also be possible to affix the inserts 30 in the valve body 2 directly by means of the first actuator 15 and the second actuator 16.

Page 15, please replace paragraph [0050] with the following amended paragraph:

[0050] The attachment of the holding body 5 to the lower end of the valve body 2 by means of a clamping nut 4 makes it possible to take into account different engine installation lengths of the fuel injector 1 embodied according to the invention. Without having to modify the relatively complex valve body 2 of the fuel injector 1, once the clamping nut 4 between the holding body 5 and the valve body 2 is loosened, a holding body 5 with a matching installation length can be attached to the valve body 2 by means of the clamping nut 4. At the lower end of the holding body 5 – not shown in Fig. 4 – a nozzle retaining nut 8 holds a nozzle body 9, which contains a vertically moving injection valve element 11 embodied, for example, in the form of a nozzle needle. A closing spring 10 can act on the injection valve element 11 (see depictions in Figs. 1 to 3). The nozzle chamber 12 encompassing the injection valve element 11 inside the nozzle body ~~8~~ 9 is acted on with highly pressurized fuel via the inlet bore 36 extending essentially parallel to the central bore 6 in the holding body 5.

Page 17, please delete paragraph [0052].

Page 27, please replace paragraph [0076] with the following amended paragraph:

[0076] In a third switched position S2 of the magnetic actuator 89, the injection quantity is simultaneously controlled via the two outlet throttles 17 and 18, in connection with a pressure increase executed by the pressure booster 86. The injection pressure thus produced is significantly greater than the pressure level in the pressure reservoir 85 and in actual practice, can reach up to 1.5 to 3 times this pressure level. As has already been explained above, the pressure boosting that can be achieved by means of the pressure booster ~~89~~ 86 depends on the piston area ratio between the high-pressure and low-pressure sides of the pressure booster 86.

Please add the following new paragraph after paragraph [0076]:

[0077] The foregoing relates to preferred exemplary embodiments of the invention, it being understood that other variants and embodiments thereof are possible within the spirit and scope of the invention, the latter being defined by the appended claims.

Please delete pages 28, 29, 30 & 31.